This invention relates to weaving looms, and more specifically to picker stick governor structures for looms of the fly shuttle type employing a picker-stick actuated picker.

Looms of the type to which the invention is particularly directed employ one or more shuttles which may be received in a shuttle box and picked therefrom by a picker, the latter being secured to the upper end of a picker stick which is suitably actuated to impart picking and return motions to the picker. The motion of the picker, relative to the shuttle box in which it operates, is desirably translatory in character, so only axially directed forces are applied to the shuttle in the picking action. Looms as commercially manufactured are usually provided with mechanism which applies a force to the picker stick intermediate its ends and with mechanism for controlling movement of the lower end of the stick in such manner that the upper end of the stick and the picker thereon are moved in a curved path which approximates more or less closely the rectilinear path desirably followed by the spur of the shuttle being picked. Further, mechanism for checking or arresting the motion of the stick to terminate the picking and return strokes thereof is provided, generally in the form of a closed loop of leather in the form of a strap and encircling the stick and anchored to a part of the loom lay in a fashion to limit the travel or extent of stroke of the stick, and frictioned so as to absorb the kinetic energy possessed by the stick and associated parts as they approach the limits of their movements. Also, a mechanism is usually provided for inducing return movement of the picker stick toward picking position following termination of a picking stroke, which movement may be completed by entry of the same or another shuttle into the shuttle box.

With looms operating at or near their rated speeds, as, for example, from 180 to 200 picks per minute, the above mentioned mechanisms operate satisfactorily to perform their intended functions. However, when substantial increase in loom operating speed is attempted, as is the general tendency at the present time, difficulties are encountered in operation of those mechanisms. The upper end of the picker stick and the picker attached thereto then do not follow the same paths followed at normal loom speeds, the picker stick tending to jump vertically during its strokes. This jumping causes very irregular picking to occur, and also causes an excessive amount of shuttle spur loosening due to application of non-axially directed blows to the shuttle spurs. Similarly, the return and checking of the picker stick are not consistent or uniform; and the check straps are given abnormal movements and are caused to wear excessively, necessitating frequent and expensive replacement.

Much time and money has been expended in efforts to improve upon picker stick motions and checks, but none of the previously proposed improvements has thus far attained commercial success. Many of the proposed structures have been too costly to be practical, others have been lacking in adjustability or have been otherwise incapable of satisfactorily performing the intended functions, and none has been found to operate satisfactorily at exceptionally high loom operating speeds. For example, many of the suggested structures have been cumbersome and have so added to the inertia of the lay as to prohibit high speed operation of the lay, and some have failed structurally when thus operated. Another objectionable feature of previously suggested structures of the type under consideration is that adjustments thereof, if at all possible, necessarily had to be effected with the loom at standstill, which rendered inevitable a time-consuming and tedious trial-and-error method of arriving at an adjustment which could then never, except by accident, be precisely that desired.

With the above objectionable features and disadvantages of prior art picker stick controlling mechanisms in view, it is an object of the invention to provide a picker stick governor mechanism capable of effectively performing all of the above mentioned functions of checking the picker stick in both directions of its motion, inducing return motion of the stick toward picking position, and restricting picking movements of the picker to those wherein a selected point within the outline of the picker is caused to travel in a rectilinear path relative to the associated shuttle box, the several parts being so constructed and arranged as to permit effective operation at exceptionally high loom operating speeds. Another object of the invention is to provide a picker stick governor mechanism capable of checking the picker stick with different degrees of checking action during loom operation, whereby adjustment of that action can be quickly and precisely effected. Another object of the invention is to provide a picker stick governor mechanism constructed and arranged to check the picker stick with different intensities of checking action on its picking and return
strokes, to induce return movement of the stick towards picking position following a picking stroke and to a selected extent, and to permit ready adjustment of each of those actions during loom operation. Another object of the invention is to provide a picker stick governor mechanism capable of satisfactorily performing said checking and return functions and effecting rectilinear motion of a point within the outlines of an associated picker, all during exceptionally high speed loom operation. Another object of the invention is to provide means for ready adjustment of the checking and return actions of a picker stick governor mechanism. An additional object is to provide a picker stick governor mechanism arranged for oscillation with the lay and effective to satisfactorily perform the above mentioned functions usual to such mechanisms at exceptionally high loom operating speeds and effective to reduce the inertia forces involved in lay oscillation. Another object of the invention is the provision of a picker stick governor mechanism of unitary form possessing improved operating and adjustment characteristics. An additional object is to provide general improvements in a fly-shuttle loom.

The above recited and other objects of the invention that will hereinafter become apparent are attained by the invention, a preferred structural embodiment of which is fully disclosed in the following description considered in conjunction with the accompanying drawings forming a part of this specification.

In the drawings:

1. Fig. 1 is a pictorial view depicting only so much of conventionally fly-shuttle loom structure as is necessary to a full understanding of the invention, with governor structure according to the invention thereto applied;

2. Fig. 2 is a pictorial view of structure shown in Fig. 1 but from a different point of view than that of Fig. 1 and at a different scale;

3. Fig. 3 is a pictorial view from the rear, showing structure illustrated at the lower part of Fig. 1;

4. Fig. 4 is a view in front elevation of a base element forming a part of a base device according to the invention;

5. Fig. 5 is a sectional detail view taken substantially along line 5-5 of Fig. 4, and in the direction there indicated;

6. Fig. 6 is an exploded view in end elevation of a bracket device according to the invention, with a portion of a conventional picker stick thereto adapted to be secured;

7. Fig. 7 is a sectional view taken substantially along line 7-7 of Fig. 6 and in the direction there indicated, with portions broken out to show details;

8. Fig. 8 is a bottom view in section taken on a substantially horizontal plane including line 8-8 of Fig. 1 and in the direction there indicated;

9. Fig. 9 is a pictorial view of a portion of a check device according to the invention;

10. Fig. 10 is an end view of structure comprised in a picker stick return device according to the invention;

11. Fig. 11 is a sectional view taken along a plane including line 11-11 of Fig. 10 and in the direction there indicated, with a portion of the aforementioned base element included by means of dotted lines to indicate an assembled relationship of parts;

12. Fig. 12 is a detail sectional view taken substantially along line 12-12 of Fig. 10 and in the direction there indicated; and

Fig. 13 is a sectional detail view of cam, follower, and follower pin and bearing structures utilized in the governor mechanism.

The loom to which the illustrated embodiment of the invention is shown as applied is of a conventional type having a lay which oscillates or rockers forwardly and return stroke of the loom about the axis of a rocker shaft extending across the loom near its bottom. Referring to the drawings and to Fig. 1 in particular, numeral 20 designates a conventional rocker shaft upon which is supported for oscillatory movement a lay largely not shown but including a lay end 24 and a shuttle box 22. The shuttle box is arranged to receive a shuttle 23 which is operated or picked from the box toward the opposite side of the loom by a picker 24 secured to the upper end of a picker stick 25. The picker stick is actuated in the picking direction (at the right as viewed in Fig. 1) by a lug strap 26 encircling the stick and connected to power means (not shown). The structure thus far enumerated, and its operation, are conventional and well understood by those skilled in the loom art, and need not herein be further described. In addition to the invention there is provided a novel unitary mechanism which is supported on and from rocker shaft 20, the mechanism including a base device comprising a base element 21, a bracket device including a pair of opposed brackets 28 and 28a, a check device including a friction wheel 29, and a return device including a spring 30, all as will hereinafter be more fully described and explained. It will be noted from a consideration of Fig. 1 that the mentioned novel mechanism is located close to the rear of the rocker shaft 20, with the result that the inertia forces involved due to oscillation of the lay are much smaller than those involved in conventional picker stick controlling apparatus employing the usual check strap and friction devices.

Referring to Figs. 3 and 5, base element 21 is provided with a hub-like extremity 31 provided with a bore 32 into which a respective end of rocker shaft 20 is received and secured by suitable means such as set screws 33, 34 which are fitted in tapped holes in extremity 31 as indicated. Thus the base element is concentrically related to the rocker shaft about the axis of the latter and synchronously with the loom lay. The base element, forming with its set screws a base device, acts as a support for the picker stick carrying bracket elements 28, 28a, for the check device including friction wheel 29, and for the aforementioned return device. To that end the base element (see Fig. 4) is provided with a pair of cams formed in part by cam apertures 35, 36 and in part by flat surfaces surrounding the apertures on the opposite faces of the element and acting to support and guide the bracket device, a pair of apertures 37, 38 for securing the check device, and an aperture 39 for securing the return device, as will presently be explained in detail.

Bracket elements 28, 28a forming parts of the mentioned bracket device, are provided as indicated in Figs. 6 and 7 with opposed, abutting, machined surfaces 40, 40a respectively, whereby the two elements may be accurately and firmly secured together as a unit by suitable means such as bolts 41 and nut 42. Bracket element 28 is provided with a flange 43 (see Fig. 7) provided with socketed apertures 44, 45 arranged for reception of respective bolts 46, 47 employed in securing the lower end of picker stick 25 to the 76 bracket element. Bolts 46, 47 also extend
through suitable, spaced holes formed in the picker stick, through a slot aperture 48a in a lug strap guide or power block 48 (see Figs. 1 and 3), and through apertures 49 and 49a, and have nuts and spring washers applied whereby the picker stick is firmly affixed at its lower end and in tight engagement with, flange 43. Thus the picker stick and the picker therefore are forced to move as a unit with the bracket device. Bracket elements 27, 28, 28a, are provided with respective arms or extensions having aligned bores 50, 50a and 51, 51a arranged for reception of respective cam follower pins 52, 53 (see Fig. 1), each of the bores being surrounded on the inner face of the respective element by a respective one of machined surfaces 54, 54a and 55, 55a. The latter surfaces are arranged as follower or bearing surfaces to coat with the previously mentioned machined cam or bearing surfaces 35a, 35b and 36a, 36b formed on base element 27 around cam apertures 35, 36, as indicated in Figs. 2 and 3; it being understood that base element 27 and bracket elements 28, 28a are so formed as to provide a close guiding fit of the base element between the bracket elements. In view of the similarity between the cam follower structures at follower pin movements accorded to the shapes of cam apertures 35, 36, it is provided, between bracket elements 28, 28a, with a follower roll bearing indicated generally at 56, which preferably is of the needle type having inner and outer races, on which bearing is carried with a close fit a hardened follower roll 57 which is so dimensioned as to ride freely between elements 28, 28a but has a close fit within the closed curved cam surface of cam aperture 36 in the base element 27. Pin 53 further is dimensioned to provide a close fit within apertures 51, 51a of bracket elements 28, 28a. At one end pin 53 is threaded and carries the spring washer and nut whereby the pin may be secured in place on elements 28, 28a and the latter maintained in snug sliding engagement with base element 27. At its other end pin 53 is provided with a head 59 of circular cross-section, terminated by a squared portion 60 for application of a wrench or other holding tool. Portion 59 may be provided with a tapped recess to receive a lubricant nipple 61 of well known type whereby lubricant may be forced through a bore 62 formed in the pin and communicating with a passage formed through the inner race of bearing 56, whereby the cam and follower surfaces and follower bearing may be lubricated. In consequence of the described construction, and since follower or bearing surfaces 54, 54a and 55, 55a on bracket elements 28, 28a, are machined to coat with the shapes of cam apertures 35 and 36 which closely guide their respective follower rolls. Cam apertures 35 and 36 are laid out in accordance with ordinary principles of kinematics so that a desired selected point or within the outline of picker 24 will be restricted to pure translation relative to shuttle box 22 and travel in a straight line along or parallel to the axis of the box. The desired point may be selected as the point at the bottom of the usual conical recess in the picker, or a point at any of the surface of the recess, or a point at a PINTER CONTRACTUAL ORIGIN 500C24G 6 500G64G
ing through aperture 39 of the base element and

shoulder 68 of the pin pressing anchor 75 tightly

against the base element. Similarly, assuming

rotation of cup 76 is restrained (in a manner

to be presently explained) the pin 30 may be ad-

justably tensioned by loosening the nut on shank

66, rotating flatted head 64 of pin 63 in the

proper direction as by means of a wrench until

the desired tensioning is effected, and tightening

of the nut while restraining head 64 from

rotation prevents the pin 30 from being pulled

and derived therefrom, cup 76 is formed with a

depending tail 78 (see Figs. 3 and 10) which is

adapted to be moved to impart spring-tensioning

rotation to cup 76 and to reversely move under

the action of the spring to induce return move-

ment of the bracket device and picker stick, all

in a manner to be hereinafter explained in detail.

It will be understood that a picker stick check

device should operate to check or brake the

picker stick movement in both the picking direc-
tion at the termination of the picking stroke and

in the opposite (return) direction at the termina-

tion of the return movement; and that the two

checking actions are necessarily of unequal in-
tensities since much more energy must be ab-
sorbed in terminating the picking stroke than in

terminating the return movement. In attaining

the objects of the invention a check device is

provided which performs the mentioned two-way

checking function in the manner just noted, and

which may be adjusted to vary either of the

checking actions while the loom is in operation.

The check device of the novel governor mechanism

comprises a friction wheel pin 79 suitably

shouldered and extending through aperture 37 of

base element 21 and fixedly secured to that

element to provide a bearing for free rotational

support thereof of previously mentioned friction

wheel 29, in the manner indicated in Figs. 2 and

3. Friction wheel 29, illustrated in detail in

Fig. 9, comprises a hub 90 axially bored to

accurately fit upon pin 79, a head 81 having two

arms, 82 and 83, and a friction drum 84, prefer-

ably formed integrally as indicated. Drum

84 has a finished outer cylindrical surface con-

centric with the hub bore and arranged to con-

 tact with a friction band in a manner to be presently

explained. Arm 82 is provided with a bored en-
largement at its end, the bore being tapped to

receive from leg 85a, but is relatively widely offset

from leg 85b, for clearance purposes to be here-

inafter explained. Each of legs 85a, 85b is formed

with a respective bored protuberance 85aa, 85bb

whose bores are aligned and receive a friction

band anchor pin 92 which is arranged to

parallel and anchor between the two

protuberances a looped end of a friction band

93 which nearly encircles friction drum 84.

Anchor pin 92 may be retained in position by any

suitable means, as by having a head at one end

and a cotter pin at the other end as indicated in

Fig. 10. To permit band 93 to be held in any

suitable friction facing, as illustrated. The

opposite end of band 93 is looped and bifurcated

to accommodate the T-head of a T-bolt 86 as

indicated in Figs. 3 and 5. The shank of the T-

bolt extends through a bore 85 formed trans-

versely through pin 81, and is threaded thereon

a friction band tension adjusting nut 96 having

a crenelated base 97 which is adapted and ar-

ranged to coat with pin 87 to hold the nut in

adjusted position. Opposed surfaces of pin 87

disposed between legs 85a, 85b may be formed

with ridges such as shown at 88 to cooperate

with the crenelations of nut 96, to enhance

locking of the nut in adjusted position. It will be

observed that rocking of lever 83 away from pin

78 will cause increased tensioning of friction

band 93 to tension the lever, and that the initial

tension may be regulated by rotation of nut 96.

Referring now more particularly to Fig. 3, ar-

rangement and operation of the hereinafore dis-

closed mechanism is explained as follows, com-

mencing with the picker stick in initial picking

position, with spring 30 lightly tensioned suf-

ficiently to press tail piece 76 into contact with

pin 52, in whose path it is positioned, and with

pin 52 in contact with the head of actuator

screw 85. As the stick moves to the left the cam

and follower means comprised in the base device

and the bracket device and including base ele-

ment apertures 35, 36 and their adjoining sur-

faces, follower rolls 51 (one in each of apertures

35, 36), and surfaces 54, 54a and 55, 55a, act to

restrict movement of a point at the picker to

rectilineal motion relative to the shuttle box,

whereby jumping and other irregular motion of

the picker stick is prevented. Movement of the

stick (and the upper part of the bracket device)

to the left immediately causes follower pin 52

to rotate spring cup 76, thereby storing energy

in spring 30 by tensioning thereof. This tension-

ing action continues throughout movement of

pin 52 to the left, that is, during all of the picking

stroke of the picker stick. Prior to the end of

the picking stroke, but preferably subsequent to

completion of acceleration of the shuttle by the

picker, pin 52 engages actuator screw 81 of fri-

tion lever 89 and rotates the lever about pin 87,

applying increasing tension to friction band 93

which was previously only relatively lightly ten-

sioned. While pin 52 is rocking lever 89, the pin

also engages actuator screw 86 of friction wheel

29, lever arm 83 being offset to clear arm 82 and

screw 86 of the friction wheel to permit this action. Thus further movement of pin 52 to the left must cause rotation of wheel

29, which rotation is increasingly resisted by the

continuously tightening of band 93. Hence motion of pin 52 (and of the picker stick) to the left is quickly but smoothly arrested, spring 30 in the meantime having been sufficiently tensed to cause quick commencement of return movement of pin 52 and the picker stick toward initial picking position. This reverse or return move-

ment is at first entirely unimpeded by action
of the check device including wheel 29, pin 52 merely moving away from actuator screw 86. In fact the return movement may be aided somewhat by the return of friction wheel 33 to its normal position under the action of tensed band 93. Friction wheel 29 having been rotated counterclockwise (as viewed in Fig. 3) during the picking stroke, has thus positioned its actuator screw 85 in the return path of pin 52. At a selected point in that return path the pin may merely move away from actuator screw 85 and thus cause reverse (clockwise) rotation of wheel 29, which has by that time been relieved of all of the frictioning caused by the action of lever 89 and is resisted by only such normal frictioning as is applied by the band and as determined by the regulation of nut 96. Reverse rotation of wheel 29 (and consequently return motion of pin 52 and the picker stick) is thus gently arrested with spring 30 still slightly tensioned and with the picker at a desired position in shuttle box 22, usually between one and two inches inwardly from its normal picking position. From that desired position the picker is moved to active picking position by a shuttle entering box 22, the latter action causing completion of the resetting of the picker stick, bracket device, and friction wheel 29. The entire action must vary in action in accordance with loom speeds, shuttle weights and other operating factors, and it is accordingly very desirable that adjustments be permitted while the loom is in operation. The important and desirable features are characteristics of the

governor mechanism of the illustrated embodiment of the invention.

It will be understood that while I have illustrated and described a picker stick governor mechanism at only the left side of the loom, substantially similar structure of opposite hand may be located at the other side of the loom and similarly mounted as a unit on rocker shaft 29. Further while I have for the sake of brevity and conciseness illustrated one specific embodiment of the invention including one specific parallel-motion device, one specific stick return device and one specific check device, it will in view of my disclosure be evident that other forms of such devices may be employed and that modifications of the disclosed embodiment of unitary governor mechanism will occur to those skilled in the art. Accordingly I do not desire to be limited to the specific details of the illustrated embodiment of the invention, but what I claim is:

1. In a loom having an oscillatory shuttle box, a shuttle receivable in the shuttle box, and picking means including a picker stick and picker thereon and effective to have a return stroke and a picking stroke to pick said shuttle from the shuttle box, in combination therewith: a base device including a base plate slidingly supported between said shuttle box and said shuttle on a base and bracket device and supporting the bracket device on the base and comprising means of a point in the outline of said picker to rectilinear motion relative to said shuttle box; a check device including brake and brake-applying means on said base; a bracket device including brake and brake-returning means on said base; and means on said bracket device actuating said return device and said brake-applying means upon movement of the picker stick in a picking stroke and further acting to relieve said brake applying means on the return stroke of the picker stick whereby said return means is stressed and said brake is applied to check momentum of said picker stick to terminate the picking stroke and said return device induces return movement of the picker stick following termination of the picking stroke.

2. In a loom having a rocker shaft, lay means oscillating with said shaft and about the axis thereof and including a shuttle box, a shuttle receivable in the shuttle box, a picker effective upon picking movement thereof to pick the shuttle from the box, a picker stick carrying the picker at one end of the picker stick adjacent said box and disposed with its other end adjacent the axis of said shaft, and actuating means for imparting movement to the picker stick and picker, in combination therewith: a base device fixed on said rocker shaft and oscillatable therewith about the axis of the shaft; a bracket device secured to said stick adjacent said other end thereof and movable in opposite directions between limits; cam and follower means on said base device and bracket device and acting through said picker stick and constrained to move in position within the outline of said picker to rectilinear motion relative to said shuttle box; a check device including interacting means on said base device and said bracket device and acting to check extremes of travel of the bracket device in said directions; and a return spring means that interacting means on said bracket device which functions with the check device and
A resiliently urged member acting to induce return movement of the bracket device and picker stick following actuation of the latter by said actuating means.

3. A picker stick governor mechanism including in combination: a base device including a base having a hub and a portion presenting opposing positive cam faces and cam-element forming apertures therethrough between the parallel faces; a bracket device including a pair of opposed bracket elements having the picker stick clamped theretwixt, each element presenting one of two spaced-apart parallel guide faces, each of said bracket elements securing said elements together as a rigid unit with said guide faces in working contact with a respective one of said opposite parallel faces of said base: and a plurality of cam follower means on said bracket device, each said means engaging said base within its respective one of the said apertures to be closely guided thereby; whereby movement of a selected point on said bracket device is restricted to a desired prescribed path relative to said base.

4. Picker stick governor mechanism for looms of the type having a lay mounted upon a rocker shaft, which includes the combination with a picker and picker stick of a base attached to the rocker shaft and movable therewith, a means to which the picker stick is connected and cooperating, positive cam and follower means functioning between said base and means to which the picker stick is connected for operatively interconnecting the two and for constraining the picker to move in a predetermined pathway, means for returning said stick and the means to which it is connected after picking movement, and checking means operative between the base and means to which the stick is connected comprising a brake drum and band effective with increasing force in one direction of movement and at a point adjacent the extremity of travel only for resisting movement therewith between one amount of force when the stick approaches the end of its travel in one direction, and for resisting movement between the parts with a different amount of force when the stick approaches the end of its travel in the opposite direction.

5. Picker stick governor mechanism for looms of the type having a lay mounted upon a rocker shaft, which includes the combination with a picker and picker stick of a base attached to the rocker shaft and movable therewith, a bracket to which the picker stick is connected and cooperating, positive cam and follower means functioning between said base and bracket to which the picker stick is connected for operatively interconnecting the two and for constraining the picker to move in a predetermined pathway, a resilient means for returning said stick and the bracket to which it is connected after each picking movement, and a checking means operative between the base and bracket to which the stick is connected comprising a drum mounted on a portion of said base, a friction brake connected to said base and a contact member projecting from said means to which the picker stick is connected and engageable with a portion of said drum when the stick and bracket are moved in the other direction and means affecting said friction brake upon movement of the bracket and stick in one direction to resist movement between the bracket and base with one amount of retarding force when the stick approaches the end of its travel in one direction, said friction brake being operative for resisting movement between said parts with a different amount of retarding force when the stick approaches the end of its travel in the opposite direction.

6. Picker stick governor mechanism for looms of the type having a lay mounted upon a rocker shaft, which includes the combination with a picker and picker stick of a base attached to the rocker shaft and movable therewith, a means to which the picker stick is connected and cooperating, positive cam and follower means functioning between said base and means to which the picker stick is connected for operatively interconnecting the two and for constraining the picker to move in a predetermined pathway, resilient means for returning said stick and the means to which it is connected after each picking movement, said means comprising a spring one end of which is fixed with respect to said base, and the other end of which is attached to a movable means having extending therefrom a projecting arm, and checking means operative between the base and means to which the stick is connected for resisting movement therewith between one amount of force when the stick approaches the end of its travel in one direction, and for resisting movement between the parts with a different amount of force when the stick approaches the end of its travel in the opposite direction, said checking means comprising a drum rotatable upon a pivot means extending from said base, spaced arms projecting from said drum and a stop member on each arm, a friction brake band passing about said drum and an operating lever to which one end of said band is connected, said lever being pivoted at said base and having at its relative free end a stop member in substantial alignment with the adjacent stop member on one of said spaced arms projecting from said drum, a projecting contact element extending outwardly from said bracket to which the picker stick is connected, said element being so positionned as to contact the arm projecting from that movable spring and also with the stop members at one of the arms for the drum and the relatively free end of said lever to which the brake band is connected when the stick is picked in one direction thereby to energize the friction brake band thereby to retard movement of the picker stick with a force substantially less than that applied during the movement aforesaid.

7. Picker stick governor mechanism for looms of the type having a lay mounted upon a rocker shaft, which includes the combination with a picker and picker stick of a base attached to the rocker shaft and movable therewith, a means to which the picker stick is connected and cooperating, positive cam and follower means functioning between said base and means to which the picker stick is connected for operatively interconnecting the two and for constraining the picker to move in a predetermined pathway, means for returning said stick and the means to
which it is connected after each picking movement, and checking means operative between the base and means to which the stick is connected, and a common actuator member movable with said means to which the picker stick is connected and engageable with both the means for returning the stick and the means to which it is connected, and with the said checking means, for retarding the movement of the picker stick and picker in one direction of movement thereof, but engageable with only the said checking means for inducing a retarding of the movement of the picker stick at the terminal portion of the movement thereof in the opposite direction.

8. For a picker stick governor mechanism, a picker stick check which includes in combination, a drum rotatably mounted in juxtaposition to the stick, a friction brake member in pressure contact with said drum and a lever to which said brake member is connected and by which it may be applied with increasing force to the drum, and an actuator member movable with the stick for contacting the said lever after the stick has moved toward the end of its picking stroke thereby to apply increased checking force to the stick during picking strokes.

9. For a picker stick governor mechanism, a picker stick check which includes in combination, a drum rotatably mounted in juxtaposition to the stick, a friction brake band passing about said drum and in pressure contact therewith and a lever to which one end of said band is connected and by which the band may be applied with increasing force to the drum, and an actuator member movable with the picker stick for contacting the said lever after the stick has moved toward the end of its picking stroke thereby to apply increased checking force to the stick during picking strokes.

10. For a picker stick governor mechanism, a picker stick carrying bracket, a base to which the said bracket is movably attached, and a picker stick check in combination therewith which includes a drum rotatably mounted on said base, a friction brake member passing in pressure contact with said drum and a lever to which said brake member is connected and by which it may be applied with increasing force to the drum, and an actuator member projecting from said picker stick carrying bracket, movably with the stick and bracket for contacting the said lever after the stick has moved toward the end of its picking stroke thereby to apply increased checking force to the stick during picking strokes as compared to the retarding effect of said checking means on strokes in the opposite direction.

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