

J. S. TUTTLE & C. L. COOKSON.

BALING PRESS.

APPLICATION FILED JULY 25, 1905.

4 SHEETS--SHEET 1.

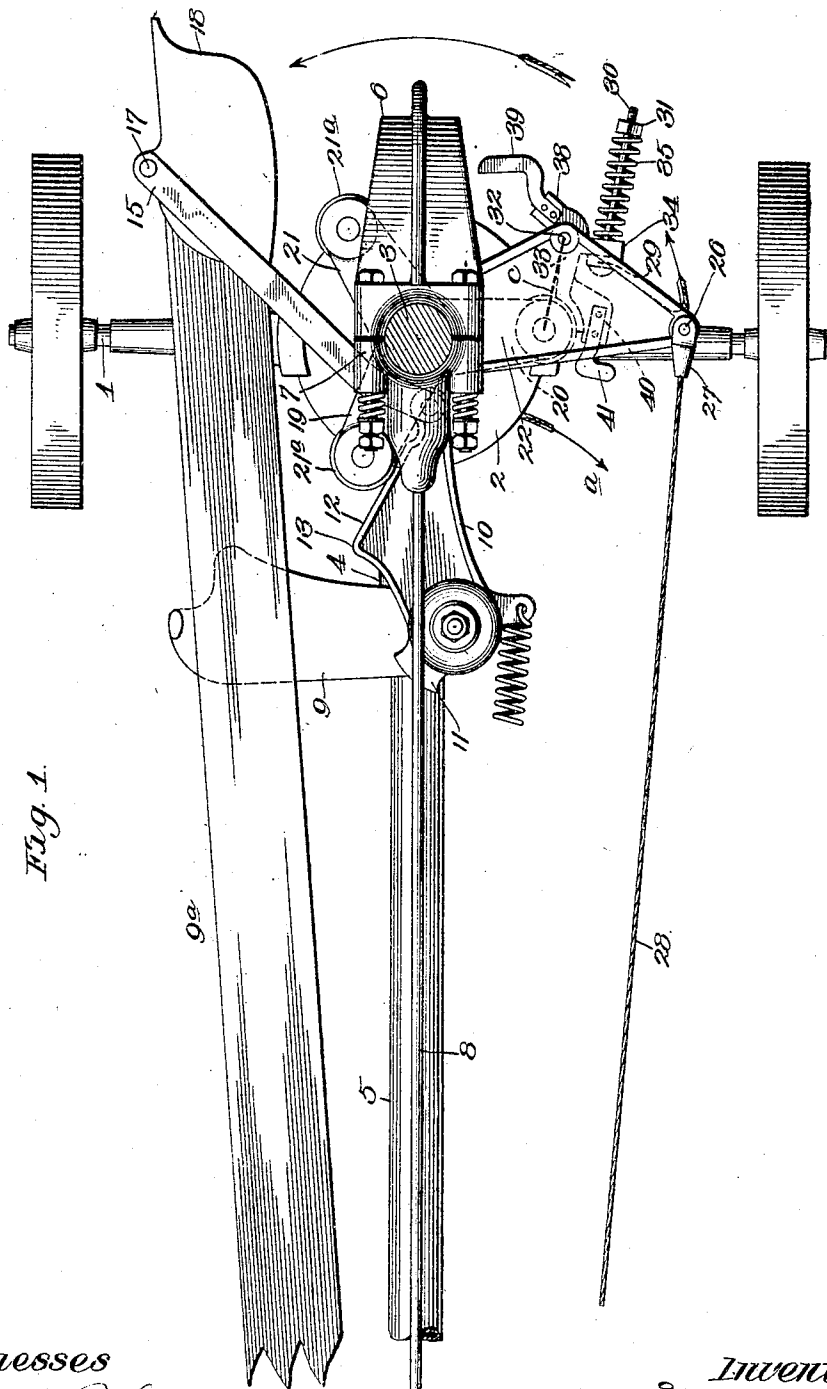


Fig. 1.

Witnesses
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By *George H. Thorpe* atty.

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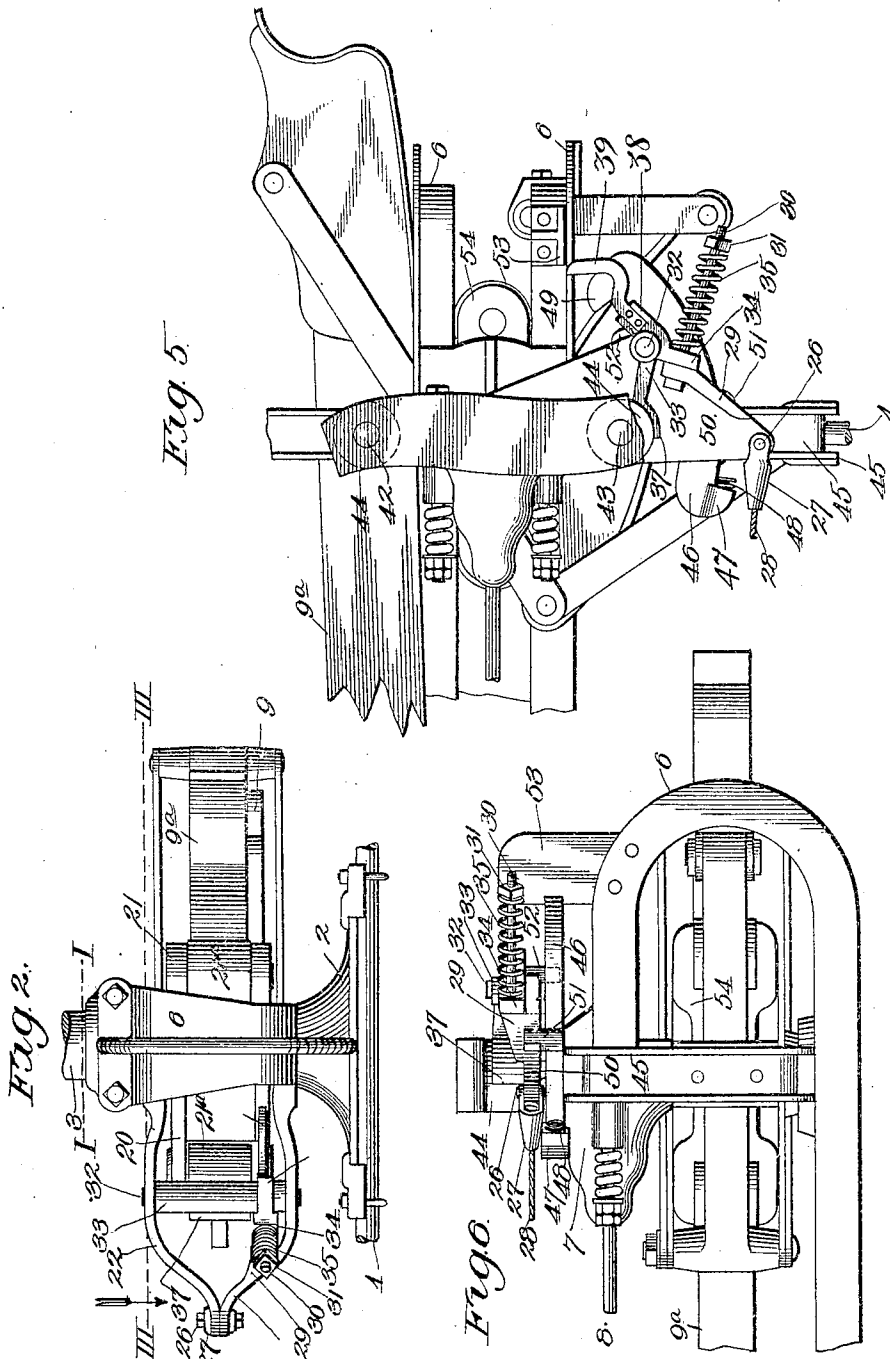
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4 SHEETS—SHEET 2.



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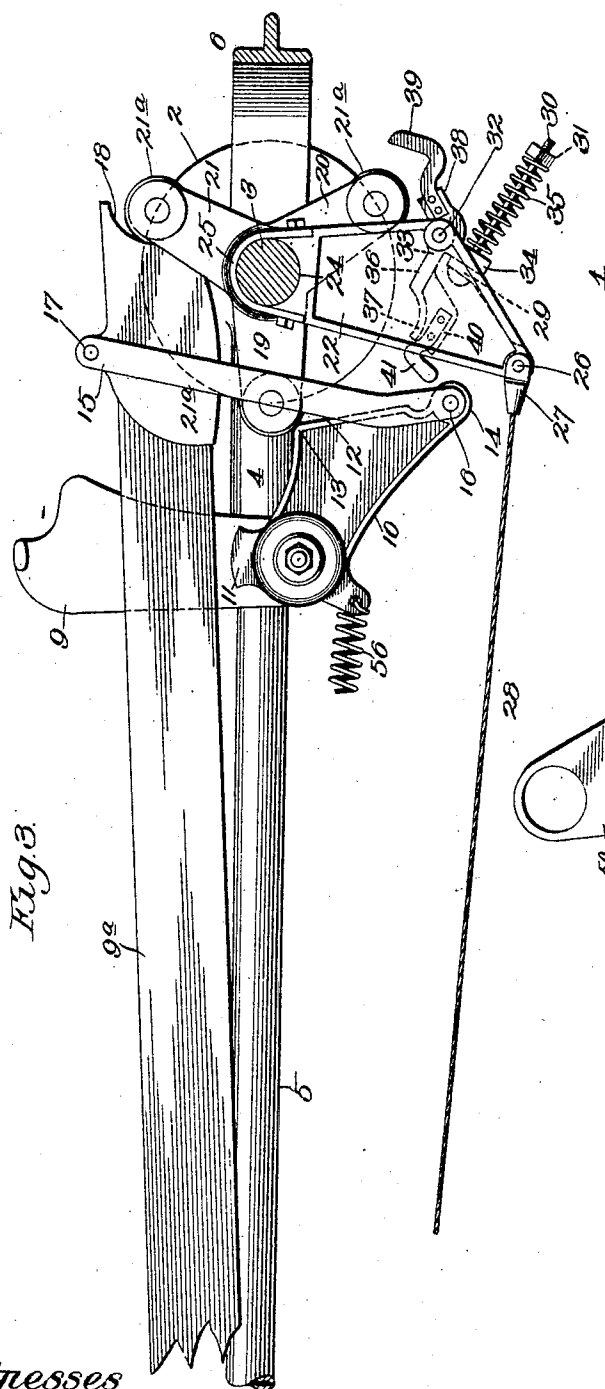


Fig. 3.

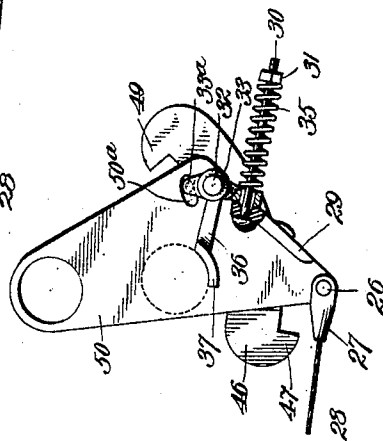


Fig. 8.

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4 SHEETS—SHEET 4.

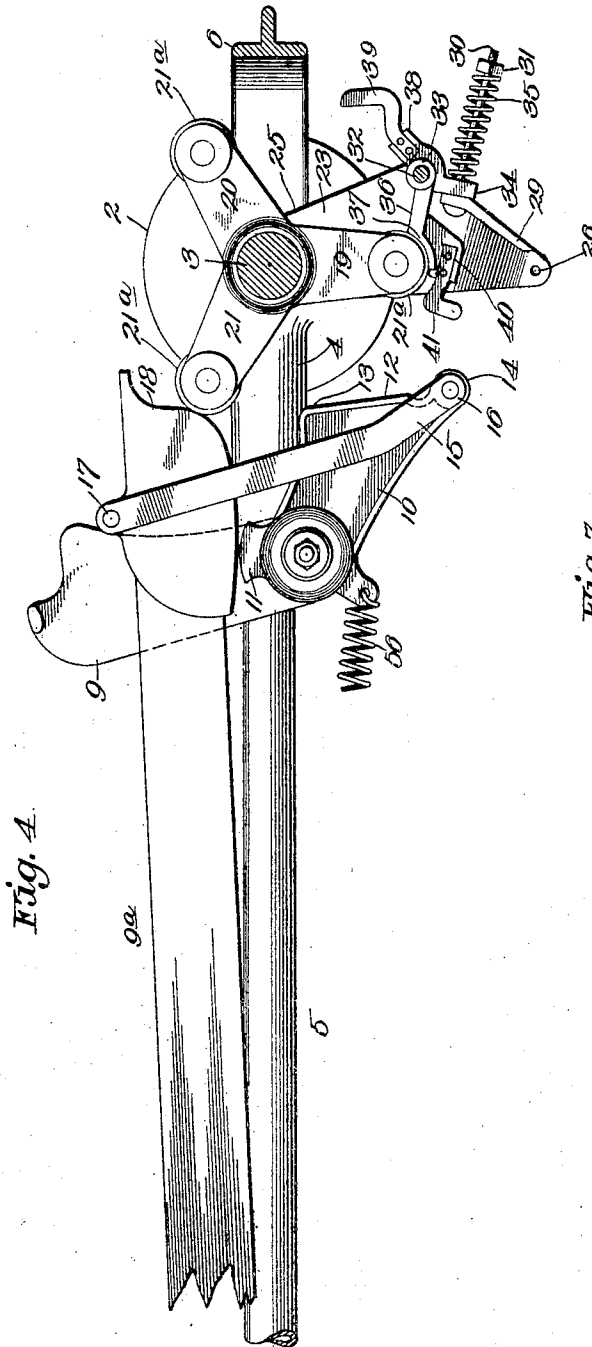
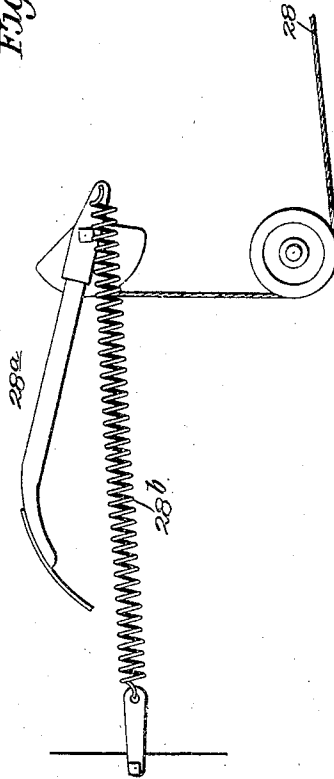
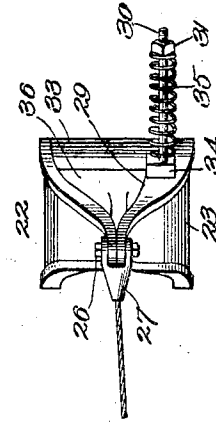


Fig. 4.

Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSIAH S. TUTTLE AND CHARLES L. COOKSON, OF KANSAS CITY, MISSOURI,
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A CORPORATION OF MISSOURI.

BALING-PRESS.

No. 814,252.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed July 25, 1905. Serial No. 271,143.

To all whom it may concern:

Be it known that we, JOSIAH S. TUTTLE and CHARLES L. COOKSON, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

Our invention relates to baling-presses, and more especially to that type operated by horse-power and equipped with self-feed attachments; and our object is to produce a baling-press having a feeder depressing or releasing mechanism which operates positively and reliably before the plunger advances a sufficient distance into the baling-chamber to come in contact with the feeder.

A further object is to produce means for automatically tripping the feeder prematurely—that is, before its full downstroke is completed without regard to the position of the plunger—should an overcharge of baling material offer sufficient resistance or should any other obstruction be disposed accidentally or otherwise in the path of the feeder at any point in its downward movement.

A further object is to produce means for cushioning the recoil movement of the automatic feeder-release mechanism to avoid injury thereto.

With these general objects in view the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a horizontal section on the line I I of Fig. 2 of a triple-arm trip-lever baling-press equipped with attachments embodying our invention with the plunger-beam occupying its recoiled position. Fig. 2 is an end view of the same. Fig. 3 is a horizontal section taken on the line III III of Fig. 2 with the plunger-beam in the position it occupies after having made about one-half its power-stroke. Fig. 4 is a similar section with the plunger-beam at the end of its power-stroke and ready for its recoil movement. Fig. 5 is a top plan view of a double-arm trip-lever baling-press equipped with our attachments. Fig. 6 is a side view of the same. Fig. 7 is a

detail side view, partly broken away, of the self-feed mechanism and the release mechanism therefor. Fig. 8 is a detail top view of a modified construction of the release mechanism.

Referring first to the construction illustrated by Figs. 1 to 4, inclusive, it will be seen that the triple-arm trip-lever press is of the same general character as regards its construction and operation as the baling-press patented July 31, 1900, by W. S. and G. Livengood, No. 654,800, said press being also equipped with brake mechanism of the character shown and described in the patent issued March 5, 1901, numbered 669,176, W. S. Livengood, inventor.

The feeder and the means for reëlevating it after it has forced a charge of baling material down into the baling-chamber are shown, but not on the baling-case, because its relation to the baling-case is described and illustrated in Patent No. 685,190, issued October 22, 1901, J. S. Tuttle, inventor.

Reference is herewith made to the above-named patents in order to avoid the necessity in this application of going into unnecessary detail regarding parts already patented and in practical use.

In said Figs. 1 to 4, inclusive, 1 indicates the axle at the power end of the machine; 2 the base-plate secured thereon and forming a journal for the lower end of the vertical power-shaft 3. 4 is a sleeve cast with or secured rigidly to and projecting rearwardly from the said base-plate, and 5 the tubular reach secured at its front end in said sleeve. 6 is the gooseneck or frame rigid with the base-plate and having its upper arm and the boxing secured thereto, forming a journal for the upper portion of the power-shaft, a rod 8 being adapted to connect said boxing rigid with the baling-case (not shown) in the usual manner.

9 indicates a pivoted plate which forms a support for the plunger-beam 9^a and a brake to cushion and limit the recoil movement of said beam. 10 indicates a swing-arm suitably mounted and provided with a trip-off lug 11 to limit the lateral inward movement of the plunger-beam at the proper time to insure its recoil at the proper side of the power-shaft, and said arm 10 occupies the same horizontal plane as the plunger-beam and has a track-

way 12, terminating at one end in a rounded head 13 and at its opposite end in a rounded toe 14.

15 indicates a pair of links one above and the other below arm 10 and the plunger-beam, said links being pivoted at their opposite ends, as at 16 and 17, to the toe of arm 10 and to the plunger-beam, the latter having the usual pocket 18 at its front or free end.

19, 20, and 21 indicate rigid arms projecting from the power-shaft in the plane of the plunger-beam and arm 10 and forming the trip-lever, said trip-lever arms being equipped with the usual antifriction-rollers 21^a.

A swing-frame for movement in a horizontal plane and projecting toward the opposite side of the machine from the plunger-beam consists of oppositely-bowed castings 22 and 23, each casting having a concave socket 24 to fit snugly against the power-shaft within and contiguous to the gooseneck, substantially semicircular-shaped clips 25, bolted or otherwise secured to said castings, fitting around the shaft and forming, in conjunction with such sockets, journals for the swing-frame. The outer ends of said castings taper almost to a point and are secured together by a bolt 26, upon which is pivoted a clip 27, to which the front end of a chain or cable 28 is attached, said chain or cable being connected at its opposite end to operate the feeder 28^a, as shown, a spring 28^b reelevating the feeder after each depression.

29 is a flange projecting upward from the outer portion of casting 23 of said frame, and 30 a bolt projecting through said casting and engaged at its threaded end by a nut 31.

32 is a vertical bolt connecting the castings of the frame, and pivoted thereon is a casting 33, provided with an arm 34, fitting loosely upon bolt 30 and held with a yielding pressure against the outer side of flange 29 by the expansive coil-spring 35, mounted on said bolt.

36 is an arm projecting rearwardly and substantially at right angles to arm 34, provided with an outwardly bowed or curved shoe 37, struck from a radius about equal to that of the antifriction-rollers 21^a and held by the pressure of spring 35 in such position that said rollers shall successively engage it.

38 is an arm projecting forwardly from casting 33, and 39 a substantially hook-shaped bar rigidly carried by said arm, the forward edge of the hook portion of said bar being so disposed that it will strike the inner edge of the front portion of the gooseneck unless the feeder is prematurely released. This bar 39 constitutes the means whereby the feeder is released, so as to avoid any possibility of it being struck by the advancing plunger.

40 indicates a recessed rib projecting from the convex side of the shoe 37, and 41 an angle-bar secured in and projecting rearwardly

from said rib for the purpose of striking against the toe end 14 of swing-arm 10, and thereby utilize the spring 35 to cushion the return of the swing-frame to its original position as such return is effected by the relevation of the feeder.

Assuming that the parts are in the position shown in Fig. 1, it will be seen that the rotation of the power-shaft, as indicated by the arrow, will cause the antifriction-roller of trip-arm 19 by pressure against trackway 12 of swing-arm 10 to swing said arm in the direction indicated by the arrow *a*, same figure, and that the antifriction-roller of trip-arm 20 by engagement with shoe 37 will swing the swing-frame in the direction indicated by the contiguous arrow, same figure, and thereby impart downward movement to the feeder. Should the baling-chamber be empty or contain an insufficient quantity of baling material to materially resist the downward movement of the feeder, the swing-frame will be moved in the direction indicated until the outer edge of the hook end of bar 39 strikes the inner edge of the front portion of the gooseneck and is forced inward thereby against the resistance of spring 35, this action obviously turning casting 33 on pivot-bolt 32 and swinging the shoe 37 out of engagement with the roller of trip-arm 20. As this tripping action takes place the feeder is reelevated and swings the swing-frame back to its original position, this back swing or recoil of said frame occurring at the moment that the toe end of the swing-arm 10 is in the path of movement of arm 41, which was swung inward again by the expansion of spring 35 as soon as the said trip-arm roller moved out of engagement with said shoe. Arm 41 therefore strikes said toe of the swing-arm 10, and the spring 35 cushions the blow, and thus prevents said swing-frame from striking and perhaps being broken by swing-arm 10.

As the arm 10 during the operations described is moving continuously outward under the pressure of the roller of trip-arm 19 it passes outward of bar 41, and as it assumes approximately the position shown in Fig. 3 the roller of said trip-arm 19 is rolling around the rounded head 13 of the swing-arm, the roller of trip-arm 21 at the same time entering the pocket at the front end of the plunger-beam, so as to impose direct longitudinal pressure thereon for the remainder of its power-stroke, it being understood that during the preceding operations the swing-arm 10 through the medium of links 15 imparted longitudinal and inward movement to the plunger-beam. After the roller on trip-arm 21 engages the pocket for the purpose of continuing the power-stroke of the plunger-beam the links 15 act to push the swing-arm 10 farther outward.

Before the roller of the last-named trip-

arm attains the position shown in Fig. 4, which is the extreme position of the plunger-beam in making its power-stroke, the roller of trip-arm 19 engages the shoe 37 so as to swing the swing-frame forwardly, this forward movement of the swing-frame under such engagement continuing until the recoil of the plunger has occurred and the latter has again been partially advanced through the medium of the roller of trip-arm 21 on the track-surface 12 of the swing-arm 10. Assuming that there is no baling material in the baling-case, all future operations are repetitions of those described. When the baling material is being fed into the baling-case and is forced therein by the feeder in such quantity that the latter cannot make its full downward stroke, it is obvious that the disengagement with the shoe 37 must occur before bar 39 comes into engagement with the front end of the gooseneck, as hereinbefore explained, as otherwise the feeder or some part of the attachment is liable to breakage. This danger is reliably overcome because of the yielding resistance offered by spring 35—that is to say, if the downward movement of the feeder is arrested before it has made its full stroke, and therefore through the medium of cable 28 arrests the forward swing of the swing-frame, the spring 35 will yield to permit the trip-lever roller-engaging shoe 37 to ride or roll out of the latter, this action invariably occurring because the front end of the shoe is outward of the plane of the centers of pivot-bolt 32 and the roller engaging said shoe, as will be readily understood by reference to the dotted lines *c*, connecting said centers in Fig. 1. In this connection it will be seen also that because the shoe corresponds in radius to the trip-lever roller its front end will always be outward of the plane indicated without regard to the distance of said rollers from the axis of the power-shaft, it being understood, of course, that the rollers must never be so far from the axis of the power-shaft that they cannot pass inward of the body portion of casting 33, because said casting is a fixed distance from said axis. It will be noticed in this connection that should the connection between the feeder and swing-frame break when the latter is being pushed forward by the trip-lever arm, said swing-frame cannot be swung completely around the power-shaft because hook-bar 39 by impact on the gooseneck will trip the shoe from engagement with the trip-lever roller and permit the latter to pass by. If the hook-bar 39 is not employed, and in some machines it has not been because the feeder in practice is invariably released prematurely, the breakage of the connection referred to would permit the swing-frame itself to strike the gooseneck and be arrested thereby.

Referring now to the double-arm trip-lever mechanism illustrated in Figs. 5 and 6,

and which has its parts in common with the three-stroke press correspondingly numbered, it will be noticed that the sweep-head is provided with depending bosses 42 and 43, carrying antifriction-rollers 44, adapted to travel above the gooseneck and above the arched brace 45, connecting the gooseneck with the base-plate, it being understood, of course, that any other suitable support than the arched brace may be employed as a support for the flat bearing-plate 46, secured upon the same in any suitable manner, said bearing-plate having a stop-lug 47, projecting outward from its front end and equipped with a cushion 48 in the form of a spring by preference. Said bearing-plate also has a similar lug 49 projecting inward from its rear end. The swing-frame in this case comprises a single flat plate (numbered 50) and is provided with a lug 51, depending into the horizontal plane of and the same distance from the axis of the power-shaft as stop-lug 47 and with a lug 52, depending into the horizontal plane of stop-lug 49, and the same distance from the axis of motion as the latter. The swing-frame is provided with an upwardly-projecting lug 29, as in the triple trip-arm structure and for the same purpose, and pivoted on said swing-frame is a trip-off casting of practically the same construction as the corresponding part of the three-stroke structure with the exception that it is not provided with a recessed rib 40 or bar 41.

The two-stroke structure is furthermore provided with a boss 53, projecting upward from the gooseneck into the plane of movement of the hook-bar 39, said boss performing the same function in the two-stroke press that the front end of the gooseneck performs in the three-stroke structure—that is to say, it positively effects the release of the feeder in case the latter is not prematurely released.

The socket 37 of the casting in the two-stroke structure occupies the horizontal plane of rollers 44, and the parts are so disposed with relation to the double-arm trip-lever 54 that the feeder begins to move downward at about the time the recoil of the plunger occurs and continues to move downward until shortly after the next power-stroke begins, so as to hold the baling material bunched until it begins to offer material resistance to the advance of the plunger, when the premature release mechanism operates and permits the feeder to be reelevated and the swing-frame to be swung back to its original position, this return or recoil action of the swing-frame being cushioned by the impact of its lug 51 against the spring 48.

Should the connection between the swing-frame and the feeder part, the hook-bar 39 will by striking lug 53 effect the release of the swing-frame; but should the hook-bar not be employed said frame will be released by its lug 52 striking lug 49 of the bearing-plate.

In each type of baling-press the plunger sometimes sticks in the baling-case, but should this occur and the power-shaft continue to rotate, and thereby effect the descent of the feeder, the latter upon striking and being arrested in its downward movement by the plunger will overcome the resistance of spring 35 and will be prematurely released, as will be readily understood, so as to suffer no injury from such contact with the plunger.

In Fig. 8 the arm 38 and hook-arm 39 are dispensed with, and in lieu thereof the swing-frame 50, having a slot 50^a, which receives the depending portion of angle-arm 33^a of pivoted casting 33, is provided, the lower end of said depending portion occupying the plane of lug 49. In action the angle-arm plays in the slot 50^a each time the shoe is shoved aside by the tripping-roller, and in case the cable 28 breaks said angle-arm will strike the lug 49 and spring 35 will cushion the shock and yield to permit the engaging roller to pass from engagement with the shoe.

From the above description it will be apparent that we have produced an attachment for baling-presses of the two or three stroke type which cannot fail to effect the release of the feeder in time to avoid injury due to the resistance offered to its downward movement and, furthermore, a mechanism which will operate efficiently and reliably irrespective of the point in its stroke such resistance is offered.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, rounded means movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, and a pivoted device carried by the swing-frame and provided with an arm held yieldingly in the path of said means, but disposed wholly outward of the vertical plane of the axis of said pivoted device and of the axis of the rounded means when the latter is in engagement with said arm.

2. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, rounded means movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, a pivoted device carried by the swing-frame and provided with an arm having a rounded socket at its inner side, and yielding means for holding said device with the socket in the path of the first-named means; said socket when engaged by said first-named

means lying wholly outward of the vertical plane of the axis of said pivoted device and of the axis of the rounded end of said first-named means.

3. The combination with a baling-press having a suitable framework, a power-shaft journaled thereon, a roller movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, and a pivoted device carried by the swing-frame and provided with an arm held yieldingly in the path of said roller but disposed wholly outward of the vertical plane of the axis of said pivoted device and of the axis of the roller when the latter is in engagement with said arm.

4. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, a roller movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, a pivoted device carried by the swing-frame and provided with an arm having a rounded socket at its inner side, and yielding means for holding said device with the socket in the path of the said socket being disposed outward of the vertical plane intersecting the axes of the pivoted device and roller when the latter is in engagement with the socket.

5. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, means movable with and concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, and a pivoted device carried by the swing-frame and provided with an arm held yieldingly in the path of said means, and another part in the path of an obstruction rigid with the frame and adapted to be pushed inward by the latter to trip said arm out of the path of the said means.

6. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, means movable with and concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to impart movement from the former to the latter, a pivoted device carried by the swing-frame and provided with an arm held yieldingly in the path of said means, another part in the path of an obstruction rigid with the frame and adapted to be pushed inward by the latter to trip said arm out of the path of the said means, and means to cushion the return or recoil movement imparted

to swing-frame by the retraction of the feeder when released.

7. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, rounded means movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to transmit movement from the former to the latter, a device pivoted to said frame and provided with a forwardly-projecting arm terminating at its front end in a segmental socket having its concave face disposed toward the power-shaft, and with an outwardly-projecting arm limited as to forward movement by a part of said swing-frame, a rod carried by said swing-frame and extending through said outwardly-projecting arm, an adjustable device on said rod, and a spring on said rod bearing at its opposite ends against said adjustable device and said outwardly-projecting arm.

8. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, rounded means movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to transmit movement from the former to the latter, a device pivoted to said frame and provided with a forwardly-projecting arm terminating at its front end in a segmental socket having its concave face disposed toward the power-shaft, and an arm projecting from said device to engage a fixed point on the framework and be caused thereby to swing said socket outwardly.

9. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, rounded means movable with and adapted to travel concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to transmit movement from the former to the latter, a device pivoted to said frame and provided with a forwardly-projecting arm terminating at its front end in a segmental socket having its concave face disposed toward the power-shaft, an arm projecting from said device to engage a fixed point on the framework and be caused thereby to swing said socket outwardly, and means for yieldingly resisting outward movement of said socket.

10. The combination with a baling-press having a suitable framework, a power-shaft journaled therein, means movable with and concentrically around the power-shaft, and a yieldingly-retracted feeder, of a swing-frame, a connection between the swing-frame and the feeder to transmit movement from the former to the latter, a pivoted device carried by the swing-frame and provided with an arm held yieldingly in the path of said means, and means to cushion the return or recoil movement imparted to the swing-frame by the retraction of the feeder when released.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOSIAH S. TUTTLE.
CHARLES L. COOKSON.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.