C. L. COOKSON.

BALING PRESS.

APPLICATION FILED APR. 17, 1914.

1,164,992.

Patented Dec. 21, 1915.

3 SHEETS—SHEET 1.

Fig. 2.

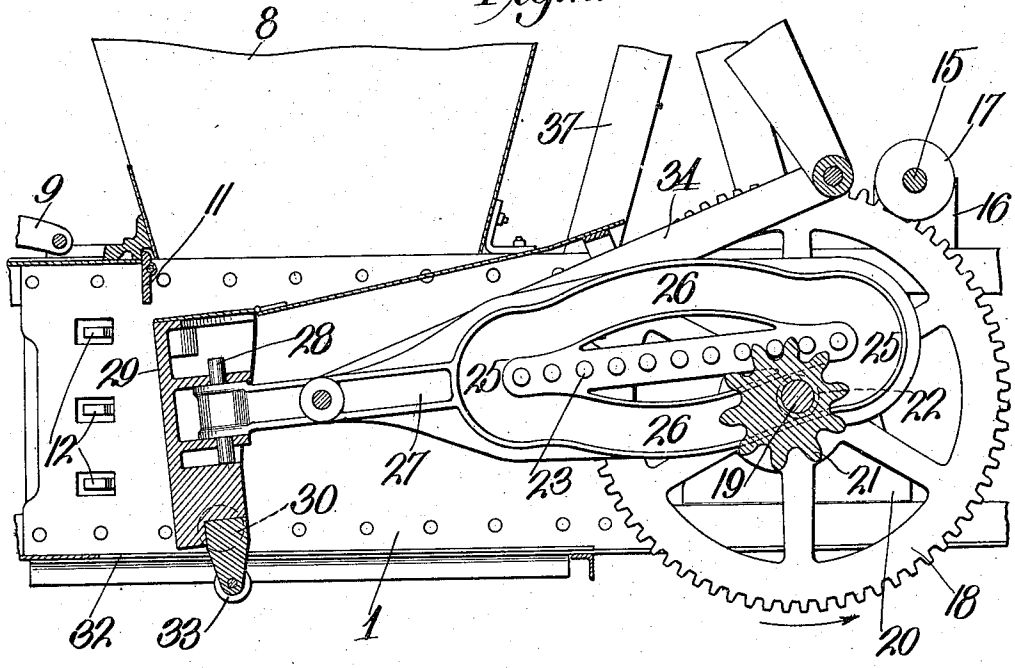
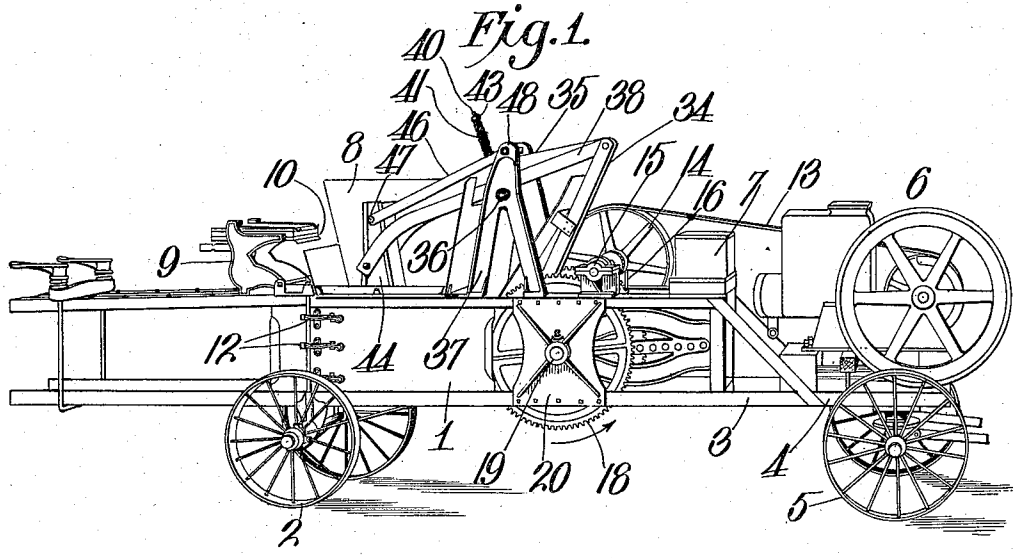


Fig. 1.



WITNESSES:

Frank R. Glore

H. C. Rodgers

INVENTOR

C. L. Cookson

BY

George Yost Thorpe

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

C. L. COOKSON.

BALING PRESS.

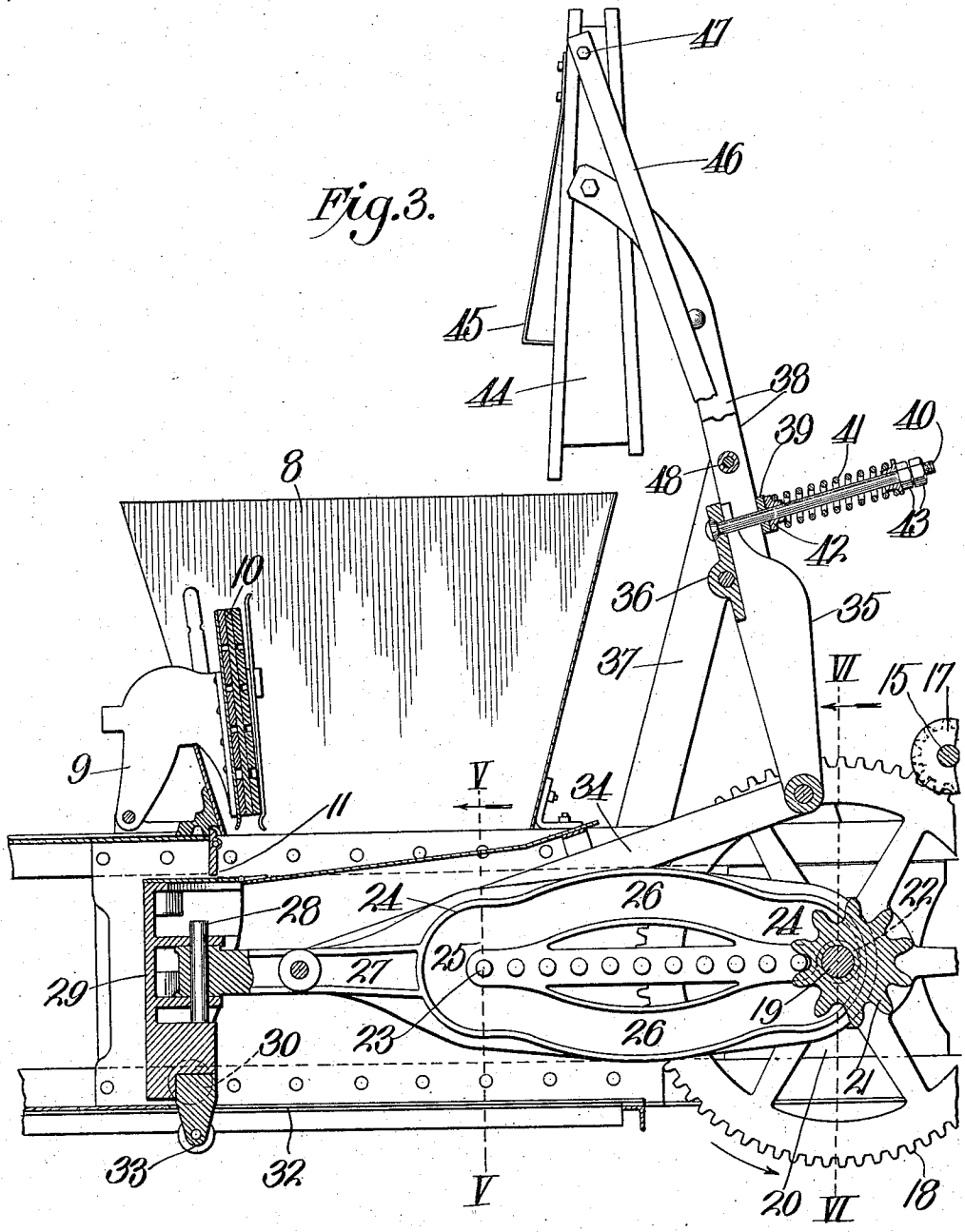
APPLICATION FILED APR. 17, 1914.

1,164,992.

Patented Dec. 21, 1915.

3 SHEETS—SHEET 2.

Fig. 3.



WITNESSES:

Frank R. Glore

H. C. Rodgers

INVENTOR

C. L. Cookson

BY

George C. Thorpe

ATTORNEY.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

C. L. COOKSON.

BALING PRESS.

APPLICATION FILED APR. 17, 1914.

1,164,992.

Patented Dec. 21, 1915.

3 SHEETS—SHEET 3.

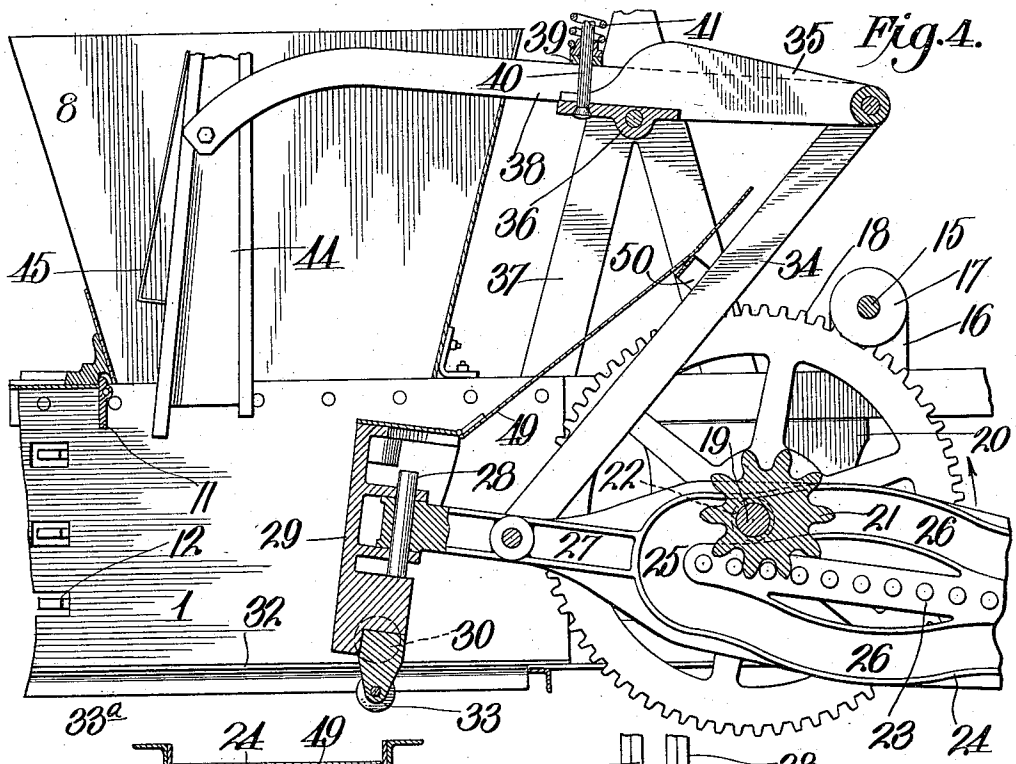


Fig. 4.

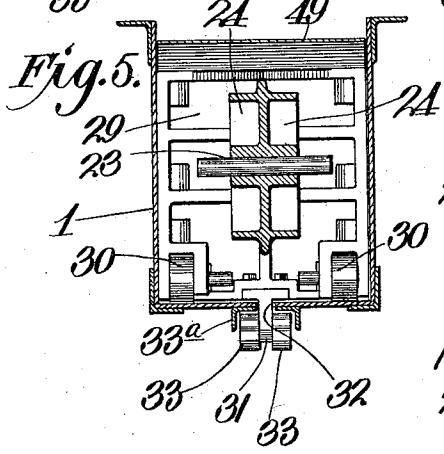


Fig. 5.

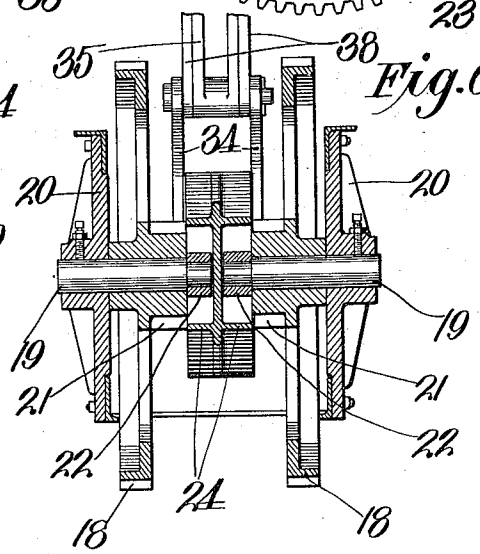


Fig. 6.

WITNESSES:

Frank R Glore

H. C. Rodgers

INVENTOR

C. L. Cookson

BY

George F Booth

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES L. COOKSON, OF KANSAS CITY, MISSOURI.

BALING-PRESS.

1,164,992. Specification of Letters Patent. Patented Dec. 21, 1915.

Application filed April 17, 1914. Serial No. 832,655.

To all whom it may concern:

Be it known that I, CHARLES L. COOKSON, a citizen 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.

This invention relates to baling presses, and my object is to produce an efficient power press of simple, light, compact and strong construction, and which in proportion to its weight and length, has a larger feed opening than any power press of which I have knowledge.

A further object is to produce a construction in which the head block is caused to tilt forward in making its power stroke to coöperate more effectively with the folder, and rearward in making its return stroke, to more readily admit of the passage of the baling material from the hopper to the bottom of the baling chamber under the pressure of the feeder.

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 perspective view of a baling press embodying my invention. Fig. 2, is an enlarged central vertical section of a part of the press with the head block just about to pass under the folder. Fig. 3, is a similar view with the head block in its most advanced position. Fig. 4, is a similar view with the head block almost completely withdrawn. Fig. 5, is a cross section on the line V—V of Fig. 3. Fig. 6, is a cross section on the line VI—VI of Fig. 3.

In the said drawings 1 indicates the baling chamber of the machine, said chamber being of conventional type and mounted upon wheels 2. The lower corner irons consisting of alined portions 3 and 4, rigidly connected in any suitable manner, provided they can be separated for convenience of shipment, and the portions 4 are mounted upon the front wheels 5 and carry a motor, such as a gas engine 6, the battery box of the engine being shown at 7.

8 is the hopper of ordinary type, that is, open at one side, as shown, so that the baling material can be conveniently supplied to the hopper from a feed table, not shown.

9 is an ordinary hinged carrier for the division block 10, and the adjacent end wall of the hopper is cut down so that the carrier may be swung from the position shown by Fig. 1 to the position shown by Fig. 3, to dispose the division block in position to be forced out of the carrier and down into the baling chamber by the feeder, in the customary manner. Depending into the baling chamber at the lower edge of the hopper wall which is cut down, is an ordinary folder 11, and adjacent thereto are the customary bale-retainers 12.

All of the parts thus far described are of common and well known construction, except that it is new as far as I am aware, to make the frame in sections for convenience of transportation.

Power is transmitted from the engine through belt 13 to wheel 14 mounted on one end of a transverse shaft 15 journaled in bearing 16, secured upon the framework of the baling chamber at the opposite side of the hopper from the carrier 9.

17 are gear pinions mounted on shaft 15 and meshing with larger gear wheels 18 journaled on stub-shafts 19, rigidly secured to and projecting inwardly from castings 20, secured to the baling chamber frame and cast integrally with and at the inner sides of wheels 18 are gear pinions 21, which pinions are disposed or formed eccentrically of the stub shafts, and the inner ends of the latter are diametrically reduced and form journal supports for antifriction rollers 22.

A pitman for transmitting power from the driven eccentric pinions to the head block, hereinafter identified, embodies longitudinal rack bars 23 and substantially elliptic channeled guides 24 inclosing the rack bars, the teeth of which bars are preferably in the form of steel pins cast in the bars. The channeled guides each consist of semi-circular ends 25 extending concentrically around the end-most pins or teeth of the rack bars, and oppositely bowed portions 26 connecting the said semi-circular portions 25, the said channeled guides snugly receiving the antifriction rollers 22 on the inner ends of the stub shafts for the purpose of preventing undue lateral pressure on the teeth or pins of the rack bars, by the eccen-

tric pinions. The pitman also embraces a portion 27 alined with the rack bar and pivoted on upright 28, carried by the head block 29, adapted for reciprocal movement in the baling chamber, and to eliminate friction as far as possible, the head block is provided with track wheels 30 which run upon the bottom plate of the baling chamber. To prevent undue upward movement of the head block, it is provided with a stem 31 extending downward through a slot 32 in the bottom of the baling chamber and provided with a pair of antifriction rollers 33 for engagement at times with the bottom of the baling chamber or rather with angle irons 33ª secured to the bottom of said chamber to stiffen the same. Pivoted to portion 27 of the pitman is a pair of links 34, which are pivotally connected at their upper ends to a swing frame 35 having a cross piece 36 fulcrumed for movement in a vertical plane on standards 37 rising from the baling chamber frame.

38 are feeder arms normally resting on cross piece 36 and pivoted coincidently with swing frame 35, to links 34. A clamp plate 39 rests upon feeder arms 38 to hold the same normally upon the cross piece 36 and to permit said feeder arms to swing upwardly from the cross piece, a bolt 40 extends from the cross piece up through clamp plate 39 and is equipped with a spring 41 to press a plate or washer 42 against plate 39 and to find a resistance point against a lock nut 43 mounted on the upper end of said bolt.

44 is the feeder provided with a knee 45 and pivoted to the outer end of the feeder arms 38, and also at 47 to a pair of links 46 pivoted at their inner ends at 48 to the upper extremities of standards 37. The feeder operates in the customary manner and needs no detailed description.

The head block is equipped with the customary hinged apron 49, and the free end of the apron has sliding action on a bridge piece 50 carried by links 34 to prevent the apron from coming in contact with the teeth of wheels 18. In operation the wheels 18 are driven in the direction indicated by the arrows and assuming that the head block has attained its greatest limit of power stroke, as indicated in Fig. 3, it will be apparent that the endmost rack bar tooth, which is engaging the eccentric pinion, is in engagement with the same at its point of smallest diameter and is swinging around the axis of said wheel in a downward direction. This action it will be seen tends to depress the end of the pitman remote from the head block, the speed of the depressing movement and of the consequent rear movement of the head block, increasing in proportion to the increase of diameter of the pinion until the antifriction rollers 22 pass the highest point of the arched portion 26 of the guide, after which such speed will gradually diminish until eventually the rack bar pin or tooth nearest the head block will engage the eccentric, Fig. 4 indicating the returning movement of the head block referred to and showing the rollers in dotted lines, just before entering guide portions 25 adjacent the head block, it being obvious that the engagement of the adjacent endmost tooth or pin of the rack bar will result in effecting upward swinging movement of the pitman. It will thus be seen that the pinion in effect travels elliptically around the rack bar and not only imparts reciprocatory movement to the same but also swinging movement in a vertical plane, it being also apparent that the greater part of the reciprocatory movement of the head block in either direction is rapid and that as the head block approaches the end of its travel, it moves with gradually diminishing speed and increasing power, due to the fact that the leverage of the eccentric pinions on the rack bars is increasing.

By reference to Fig. 2, it will be seen that during the advance movement of the head block, it is tilted toward the discharge end of the press and thus tends to not only condense the baling material upon the bottom of the press, but also coöperates more effectively with the folder in tucking the ragged upper ends of the bale behind the folder. It will also be noticed by reference to Fig. 4 that upon the return movement of the head block it is reversely tilted and thus acts to facilitate the entrance of the feed from the hopper into the baling chamber. The feeder performs in the customary manner, that is to say, it descends as the head block withdraws and ascends as the head block advances or makes its power stroke, and if the feeder encounters an unyielding obstruction the spring 41 yields to guard against breakage and when a sufficient amount of material has been condensed to form a bale, the operator throws the carrier 9 to the position shown by Fig. 3, so that the knee of the feeder will engage and force the division block down into the baling chamber to separate the condensed bale from the next one to be made.

From the above description it will be apparent that I have produced a baling press embodying the features of advantage enumerated as desirable, and which is obviously susceptible of changes in form, proportion, detailed construction and organization, without departing from the spirit and scope of the appended claims.

I claim:

1. In a baling press, a baling chamber, a head-block therein, a rigid element attached at one end to the head-block, a driven shaft, and means actuated by the said shaft to

spring mechanism engaging said movable bearings for supporting the latter against excessive chain tension and urging said bearings toward a working chain tension adjustment, substantially as described.

2. In a fire escape, upper and lower sprocket shaft structures, an endless sprocket carrier trained about said structures, relatively heavy and light springs for the lower shaft structure, the former acting to maintain said endless carrier under working tension and the latter acting to prevent excessive tension of said chain carrier, and a governor for limiting the speed of operation of said chain carrier and connected with said upper shaft structure to prevent transmission of load strain on the descending lap of said chain carrier from exerting tension on the ascending lap, substantially as described.

3. In a fire escape, upper and lower sprocket shaft structures, an endless sprocket carrier trained about said structures, and spring tension mechanism for one of said shaft structures comprising a relatively heavy spring acting to maintain working tension of said sprocket carrier and a relatively light spring acting to counteract excessive tension, substantially as described.

4. In an endless fire escape for buildings, upper bearings fixed to the side of the building, an upper shaft journaled in said bearings and provided with sprocket wheels, a lower shaft, sprocket wheels upon the lower shaft, chains trained about the sprocket wheels of said upper and lower shafts, bearing arms pivoted at their inner ends to said wall and provided with bearings journaling the lower shaft, a rod pivoted to one of said arms and having a spring abutment, a sleeve pivoted to said wall and telescoping said rod and provided with a spring abutment slidably engaging said rod between the ends of the latter, a relatively strong expansively acting spring on said rod interposed between said rod and sleeve abutments and acting to swing said bearing arms downwardly to maintain said chains taut, said rod having a spring abutment on its free end, and a relatively weak expansively acting spring interposed between said sleeve abutment and the last named rod abutment and acting to support said bearing arms against downward movement sufficient to bind said chains on said sprocket wheels, substantially as described.

5. In an endless fire escape for buildings, an upper shaft journaled in bearings fixed to the side of the building, and provided with sprocket wheels, a lower shaft provided with sprocket wheels, bearings pivoted to the side of the building and projecting substantially horizontally outwardly therefrom and having bearings for journaling said lower shaft, and longitudinally extensible mechanism pivoted to one of said arms and to the side of the building and including opposing springs, one acting to tension said chains and the other acting to counteract excessive chain tension, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

DANIEL S. BURKHART.

Witnesses:
H. E. SMITH,
EDNA BROYLES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."