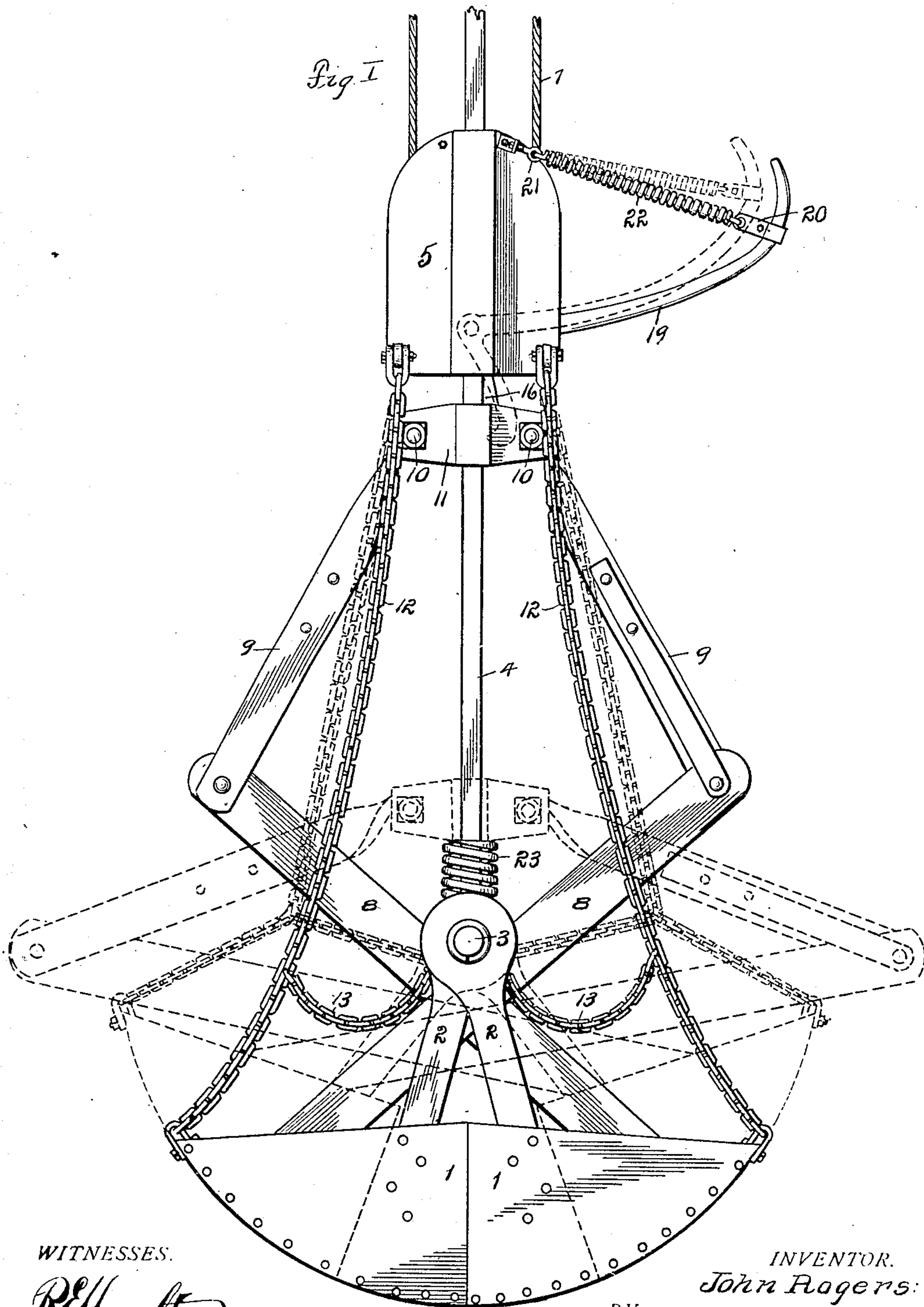


No. 869,657.

PATENTED OCT. 29, 1907.

J. ROGERS.  
CLAM SHELL BUCKET.  
APPLICATION FILED MAY 21, 1907.

2 SHEETS—SHEET 1.



WITNESSES.

*R. Hamilton.*  
*A. M. Maxwell.*

INVENTOR.

*John Rogers.*

BY

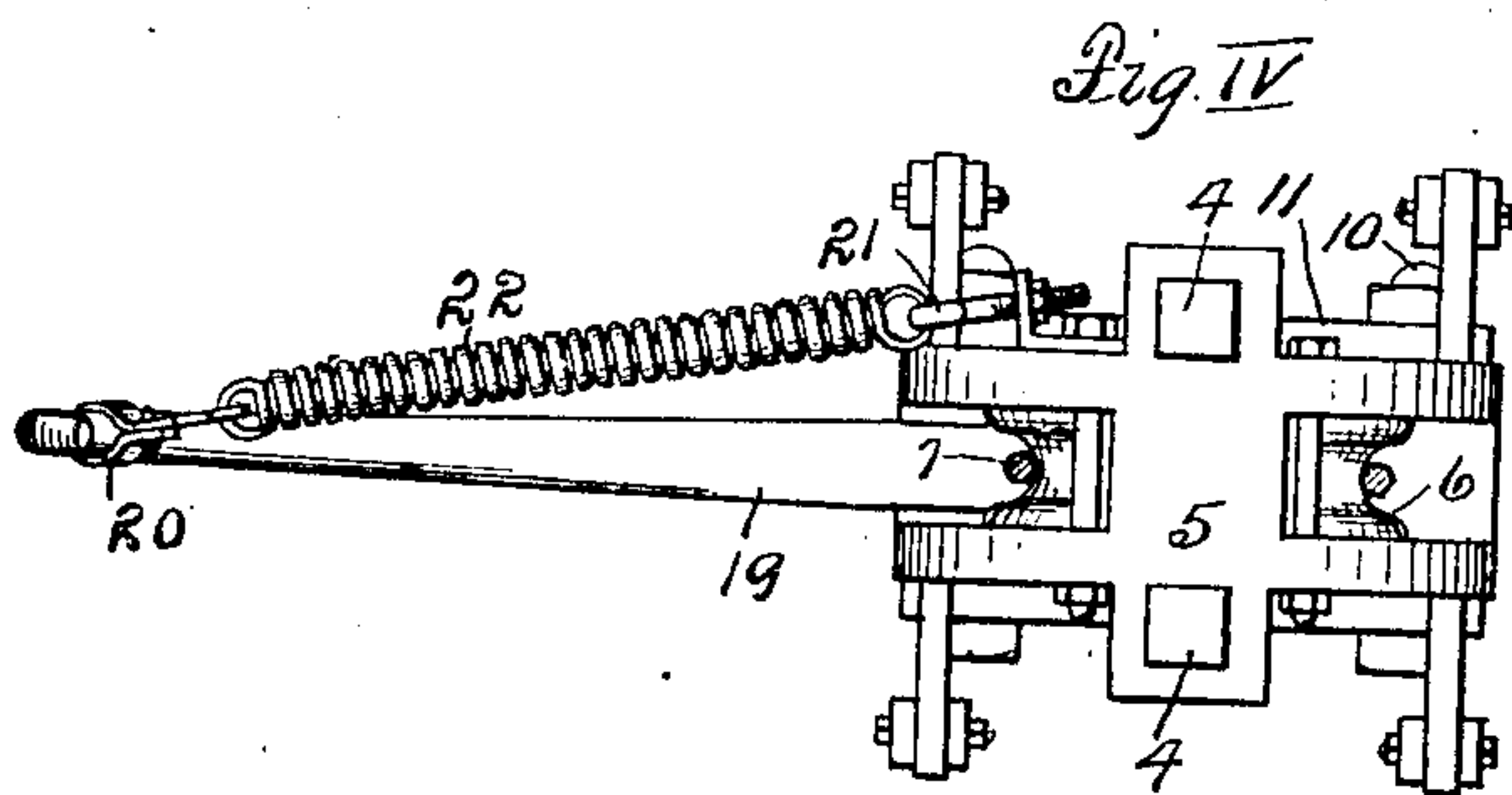
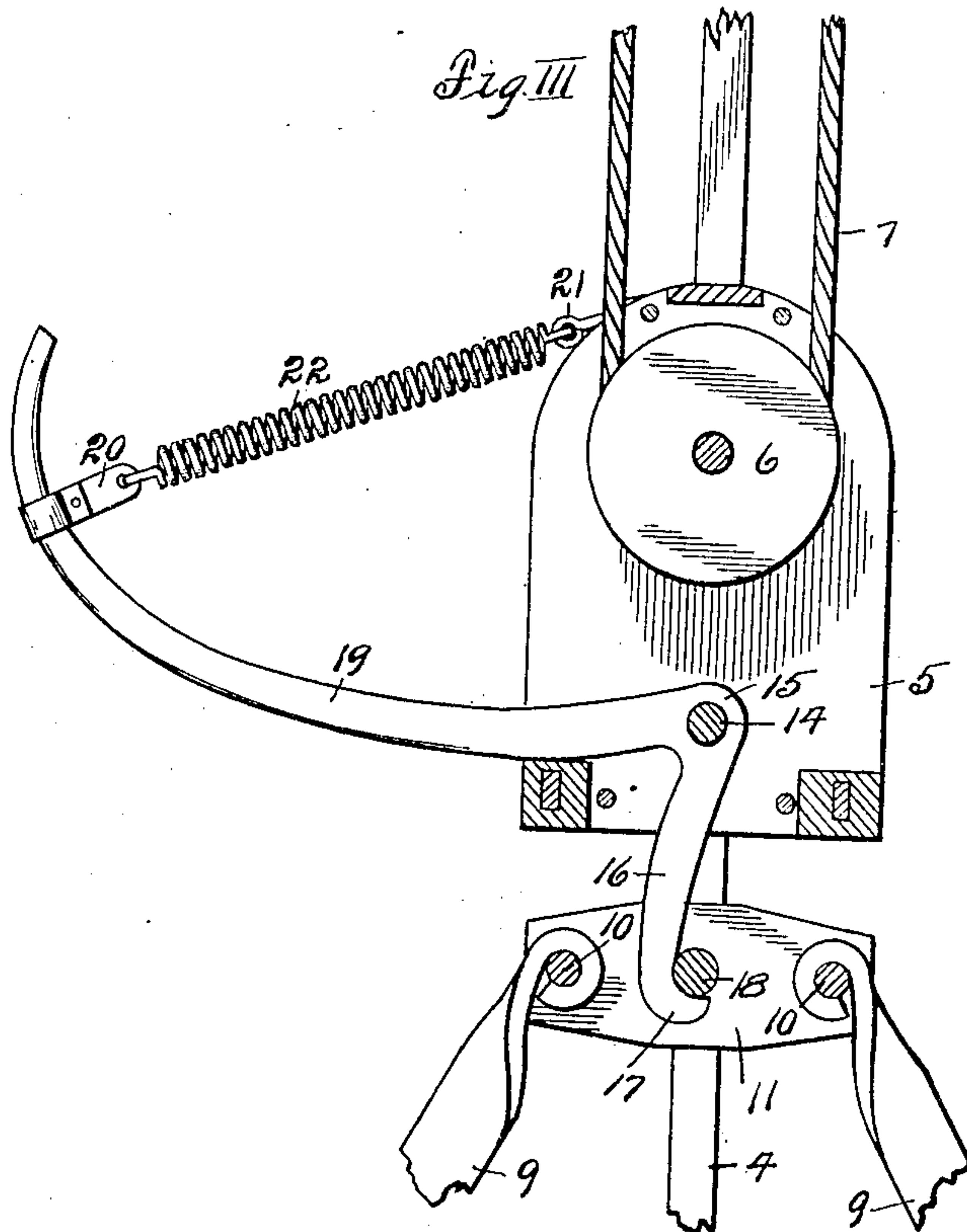
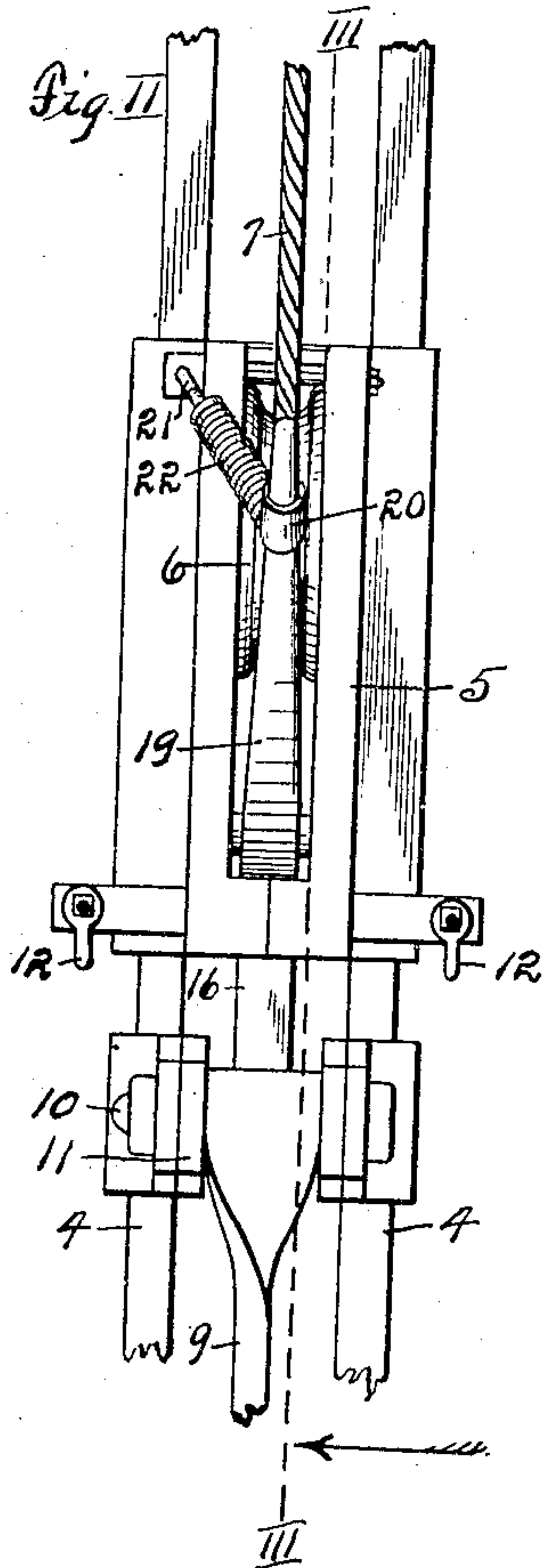
*Arthur C. Brown.*  
ATTORNEY.

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ATTORNEY.



# UNITED STATES PATENT OFFICE.

JOHN ROGERS, OF KANSAS CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS TO J. W. FLANAGAN  
AND J. A. FLANAGAN, OF KANSAS CITY, MISSOURI.

## CLAM-SHELL BUCKET.

No. 869,657.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed May 21, 1907. Serial No. 374,938.

*To all whom it may concern:*

Be it known that I, JOHN ROGERS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a certain new and useful Improvement in Clam-Shell Buckets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a "clam shell bucket", and more particularly to that portion of the bucket usually termed the "trip". Buckets of this class are usually used in loading coal, sand, ore and like material from barges or cars, each bucket being provided with a locking device for retaining the jaws in a closed position while carrying a load; which device is manually released by a chain or rope, to permit the jaws to open to effect a delivery. As the bucket is usually carried by a crane, which conducts it to the unloading position, the only service performed by the tripper is that of rocking the releasing lever, whereas if an automatic tripping mechanism be provided, a saving in expense, and labor may be effected.

It is the object of my present invention to provide an automatic "trip" for use with buckets of this class.

In the drawings forming part of this specification, I have illustrated my invention in combination with an ordinary bucket mechanism; Figure 1 being a view in side elevation of an ordinary clam shell bucket to which my improved "trip" is applied, the dotted lines indicating the position of the parts when the bucket is open; Fig. II an enlarged view in rear elevation of the upper portion of Fig. I; Fig. III a sectional view on the line III—III, Fig. II and Fig. IV a top plan view of the part illustrated in Fig. II.

Referring more in detail to the parts,—1 represents the bucket jaws, to the upper inner corners of which are secured the arms 2, which depend from and are revolubly mounted on the ends of a shaft 3.

Rising from near the ends of shaft 3 are the guide posts 4, which extend upwardly through side channels in a sheave block 5. Within block 5 is revolubly mounted a sheave wheel 6, and traveling over said wheel is the cable 7, by which the bucket unit is carried. Secured to, and extending inwardly and upwardly from the outer edges of the bucket jaws, and crossing each other beneath shaft 3, are the lever arms 8; and pivoted to the ends of arms 8, are the links 9, the upper ends of said links being anchored on the pins 10 of a bracket 11 which is slidably mounted on the guide posts 4. Depending from each lower corner of the sheave block 5, are the chains 12, the lower ends of

which are rigidly secured to the outer corners of the bucket jaws, and 13 are short chains secured at one end in links in chains 12 and at the other to shaft 3. Pivoted on a pin 14 extending through the wheel recess in the sheave block, is a bell crank lever 15, the lower arm 16 of said lever having a hook 17 adapted to engage a pin 18, which extends through the sliding bracket 11, while the second arm 19 projects at some length from the block and has an upwardly curved portion at its free end. Clamped on the outer end or arm 19 is a strap 20 and anchored at one end to strap 20 and at the other to a hook 21 on sheave block 5 is a coil spring 22.

23 are bumper springs surrounding posts 4 and resting on shaft 3, for the purpose of breaking the fall of the sliding bracket as it descends toward the shaft, as will presently be described.

When in use and before the bucket has taken a load, the hook on the bell crank trip lever, or "monkey-tail", as it is ordinarily termed, is free of the pin 18 in the sliding bracket, and the bucket jaws are supported and spread apart by means of the chains 12, the short chains 13 and arms 2, limiting such spreading movement. When the parts are in this position, the arms 8 and links 9 are lowered into the position indicated by dotted lines, Fig. I, and the bracket 11 is resting on the springs 23. In this position, the bucket is lowered onto a body of coal, sand or like material which it is desired to unload or load. Upon the inner edges of the jaws reaching and being supported on the material, the sheave block descends along the guide posts until it rests on bracket 11, when the trip lever is rocked to bring the hook 17 on arm 16 beneath the bracket shaft. When the bucket is hoisted, the sliding bracket is carried upwardly by means of the hook on the trip arm 16, thereby straightening the links 9 and arms 8, and closing the jaws on the material, and loading the bucket. In this closed position the bucket is carried to and lowered onto the spot to which it is desired to deliver the load. When the bracket is so lowered and the jaws are again supported from the bottom; and the sheave block descends along the guide posts until the hook on the trip arm is clear of the bracket shaft 18, and the trip arm is relieved of the weight of the bucket, then the tension coil spring 22 draws the upper trip arm 19 inwardly, automatically clearing the hook arm from the bracket parts. As soon as the hook arm is freed, the sheave block is again raised, this time lifting the bucket by the chains 12, which tend to separate the jaws and allow the load to escape therebetween. The bucket is then returned to the loading point and the operation repeated.

I have described a complete bucket mechanism, for the purpose of clearly illustrating the application of the automatic tripping device, which is the only part claimed as my invention.



Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent is,—

- 5 1. The combination with a clam shell bucket having spreading jaws, of means for carrying said jaws in closed position, and a tripping mechanism adapted to support the carrying means when held in engagement therewith by the weight of said carrying means and jaws, and for automatic release from such engagement when relieved of
- 10 such weight, for the purpose set forth.
2. The combination in a clam shell bucket, of jaw members having supporting means, a lifting block, a trip lever pivoted to said block and having an arm adapted for engagement with said supporting means, a second arm projecting from said block, and a coil spring carried on the
- 15 second arm and anchored to said block, and exerting a yielding tension on said first arm away from said supporting means.
3. In a clam shell bucket, the combination with a pair
- 20 of bucket jaws, of guide posts projecting upwardly from said jaws, brackets slidably mounted on said guide posts, arms connecting said jaws and said brackets, a pin carried by said brackets; a pulley block slidably mounted on said guide posts above said brackets, a bell crank lever pivoted

to said pulley block and having a hook member on one of its arms adapted to engage said bracket pin, and a coil spring on the second lever arm and connected with said pulley block, whereby the pin engaging arm is yieldingly tensioned away from said bracket pin, substantially as set forth. 25 30

4. The combination with a pair of bucket jaws, of arms for supporting said jaws in a closed position, a pivoted trip lever adapted for locking the jaw arms when under pressure therefrom, and for automatically releasing said arms when said pressure is removed. 35

5. The combination in a clam shell bucket, of jaw members, a sliding bracket, folding arms connecting the jaws and bracket, said arms being adapted to spread the jaws when folded, and close same when extended, a pin in said bracket, a rocking lever having a hook member adapted for supporting said parts through engagement with said pin, and for automatic release from such engagement upon the removal of the weight of the parts therefrom. 40

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

JOHN ROGERS.

Witnesses:

E. E. CARPENTER,  
A. M. MAXWELL.